After entry of the amendments, claims 1-45 will be pending, with claims 29-33, 43, and 45 having been withdrawn from consideration, leaving claims 1-28, 34-42, and 44 under consideration.

A. Rejections for Anticipation Over Baum

Both the Original and Final Office Actions rejected claims 1-10, 13-16, 22-27, and 44 as allegedly being anticipated by Baum *et al.* (Ber Bunsenges Phys. Chem. 96(7) 841-857, 1992, hereinafter referred to as "Baum"). Both Office Actions allege that "Baum teaches, especially on page 848, making soot in an acetylene flame. The presence of pyrene is deemed inherent, since the same step disclosed in the specification is performed." Nevertheless, the Office Action indicated allowability for certain claims, including claim 11, because "the conditions and steps are not taught to recover pyrene. The claims should be amended to recite formation of the elected material."

Applicant does not concede the validity of the stated anticipation rejection, and reiterates the arguments presented in the prior response, which were not addressed in the Final Office Action except by a conclusory statement that they were "not persuasive." Nevertheless, in the interests of facilitating prosecution and allowance, Applicant has amended claim 1 to incorporate the limitations of original claim 11, *i.e.* to recite that the condensed phase (which comprises polycyclic aromatic hydrocarbons) comprises a liquid phase. Baum does not teach or suggest a condensed phase comprising a liquid phase. Therefore Applicant's amended claim 1 cannot be either anticipated by, or obvious over Baum.

Applicant declines to amend claim 1 to recite pyrene, for the following reasons. The condensed phase and/or liquid phase of claim 1comprises at least one polycyclic aromatic hydrocarbon, and typically comprises a mixture of polycyclic aromatic hydrocarbons. *See* claim 6, and the specification page 13, lines 9-23. No single species of polycyclic aromatic hydrocarbon is either critical to or necessary for Applicant's invention, including pyrene. Depending on flame conditions, and the method of collecting the condensed phase from the flame, any individual species of polycyclic aromatic hydrocarbon (including pyrene) may or may

not be present. With the arguable exception of dependent claim 4, none of Applicant's claims relate to the presence or absence of any individual species of polycyclic aromatic hydrocarbon, including pyrene. The only special relevance of pyrene is that Applicant was forced by the Office to provisionally elect a species of polycyclic aromatic hydrocarbon. Applicant provisionally elected pyrene, as was procedurally required. Nevertheless, the presence or absence of pyrene is neither critical to nor necessary to the invention as originally claimed, or as described anywhere in the specification.

Having forced Applicant to elect a particular species of polycyclic aromatic hydrocarbon, i.e. pyrene, the Office now finalizes a rejection for anticipation over Baum, which does not teach or suggest pyrene, on the grounds that it "The presence of pyrene is deemed inherent, since the same step disclosed in the specification is performed."

Inherent anticipation occurs when "the prior art necessarily functions in accordance with, or includes the claimed limitations." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 578, 581, 20 U.S.P.Q.2d 1746,1749 (Fed. Cir. 1991). For the purposes of anticipation, missing elements may not be supplied by the knowledge of one of skill in the art. *See Structural Rubber Prods. Co. v. Park Rubber Co.*, 749, F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984).

The Office Action seems to be asserting that pyrene is necessarily found in every flame, or at least the flames of Baum. However, nowhere in Baum does the Office Action identify any reasoning or evidence to support even a "probability" that pyrene, or any other species relevant to Applicant's claim element of polycyclic aromatic hydrocarbons is "necessarily" produced in each and every flame. Applicant asserts that depending on flame conditions, pyrene might or might not be present in flame, or in the condensed phase. The Office Action may not properly rely on the knowledge of one of skill in the art to supplement Baum's teachings, in order to infer the presence of pyrene, at least in the context of an anticipation rejection.

Neither does Baum teach or suggest even the possibility of the presence of a liquid phase comprising polycyclic aromatic hydrocarbons. Therefore, the Office Action cannot support an anticipation rejection based on an "inherent" disclosure in Baum of either pyrene, or a liquid phase.

Moreover, the Office Action failed to specifically address Applicant's previously offered argument that Baum does not disclose, teach, or suggest collecting the condensed phase, let alone a teaching or suggestion to collect a condensed phase comprising a liquid phase, as specified by the amended claim. Therefore, there is no *prima facie* case to reject Applicant's amended claim 1 for obviousness over Baum. Therefore, the rejections over Baum should be withdrawn.

B. Claim Rejections for Indefiniteness Under 35 U.S.C. §112

Claim 22 was rejected under 35 U.S.C. §112, paragraph two, as being "unclear as to what the "activities and sources are." Applicant has amended claim 22 to remove the rejected words.

C. Withdrawn Claims

The First and Final Office Actions withdrew claims 29-33, 43, and 45 from consideration, because they allegedly "do not encompass pyrene." Applicant reiterates his previous response. Claims 29-33, 43, and 45 are dependent on claim 1, and incorporate all its elements. Claim 1 recites "polycyclic aromatic hydrocarbons," and therefore dependent claims 29-33, 43, and 45 also encompass claim elements for "polycyclic aromatic hydrocarbons." Pyrene is a species of the genus of polycyclic hydrocarbons. Therefore, 29-33, 43, and 45 literally read on and/or "encompass" pyrene, regardless of whether they are or are not "directed to" pyrene. Applicant therefore requests reinstatement of withdrawn claims 29-33, 43, and 45.

CONCLUSION

Pursuant to the above remarks, reconsideration and allowance of the pending application is believed to be warranted. The Examiner is invited and encouraged to directly contact the undersigned if such contact may enhance the efficient prosecution of the application to issue.

Enclosed is a Request for Continued Examination, Supplemental Information Disclosure Statement, Form PTO-1449, copies of the six (6) references cited in the Form PTO-1449, and Request for a Three Month Extension of Time. Payment in the amount of $1,640.00, including $720.00 for the Request for Continued Examination, and $920.00 for the Three Month Extension of Time, is to be charged to a credit card and such payment is authorized by the signed enclosed document entitled: Credit Card Payment Form PTO-2038. No other fee is believed due. However, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this **RESPONSE TO FINAL OFFICE ACTION** and the documents referenced herein as being enclosed herein are being deposited with the United States Postal Service as first class mail in an envelope addressed to: BOX RCE, Assistant Commissioner of Patents, Washington, D.C. 20231 on the date below.

Mark A. Murphy, Ph.D. — Date: February 19, 2002

APPENDIX A

MARKED-UP COPY OF AMENDED CLAIMS 1, 11, AND 22

1. A method for producing a polycyclic aromatic hydrocarbon comprising:

   a) condensing at least one carbon-containing material in a flame to form a condensed phase comprising a liquid phase; and

   b) collecting at least a portion of the condensed phase from the flame;

   wherein the condensed phase comprises at least one polycyclic aromatic hydrocarbon.

11. The method of Claim 1, wherein the condensed phase [comprises] is a liquid phase.

22. The method of Claim 1, wherein the carbon-containing material comprises

   a) natural gas, petroleum, wood, coal, charcoal, graphite, or other carbon-containing materials derived from plants or animals; or

   b) waste, or waste products [derived from waste reclamation activities].